UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,053	03/12/2004	Jeffrey Fortin	139641	6730

6147 7590 01/12/2006

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER	
ALLEN, ANDRE J	

ART UNIT	PAPER NUMBER
2855	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,053	FORTIN ET AL.	
	Examiner	Art Unit	
	Andre J. Allen	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10-24-05, 1-4-06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,21 and 30-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,21 and 30-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10-24-05, 3-12-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-21 and 30-36 in the reply filed on 10-24-05 is acknowledged.

This application contains claims directed to the following patentably distinct species of the claimed invention:

Species I a pressure sensing apparatus.

Species II a pressure sensing apparatus containing a finger structure.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any

claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Attorney Bill Powell on 1-4-06 a provisional election was made without traverse to prosecute the invention of species I, claims 1-9, 21 and 30-36, affirmation of this election must be made by applicant in replying to this Office action. Claims 10-20 and 22-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,3-5,21,32 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Boesen et al. (US 4092696).

Regarding claims 1,3,21 and 32 Boesen et al teaches a substrate 13 (col. 2 line 20-23) 24 (col. 2 line 53) defining a plane (fig. 1), a first conducting

plate 11 (col. 2 lines 10-20) 21 (col. 2 line 38) substantially normal to the substrate 13 24; and a second conducting plate 12 (col. 2 lines 10-20) 22 (col. 2 line 39) substantially normal to the substrate 13 24 and deformable (col. 2 line 13) in response to a pressure (col.5 line 10-11).

Regarding claim 4 Boesen et al teaches the two conducting plates are electrically isolated (col. 1 lines 40-45), and the pressure is to be measured based at least in part on capacitance between the two conducting plates (col. 2 lines 25-31).

Regarding claims 5 Boesen et al teaches a voltage level is associated with at least one of the conducting plates (fig. 4).

Regarding claim 33 Boesen et al teaches an amount of resistance associated with the deformable plate varies with stress (col. 2 lines 25-31).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2, 8,9,30,34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boesen et al. (US 4092696) in view of The Applicants Admitted Prior Art ((AAPA) hereinafter)).

Regarding claims 2,8,9,30,34 and 36 Boesen et al teaches all the basic features of the claimed invention except the substrate being associated with a micro-electromechanical system wafer, the substrate includes at least one of: (i) a silicon layer, (ii) an oxide layer, and (iii) a bonding layer and the substrate is bonded to a backing wafer and least one of: (i) piezoelectric characteristics, (ii) piezoresistance characteristics, (iii) an embedded device having piezoelectric characteristics, and (iv) an embedded device having piezoresistance characteristics.. The AAPA teaches the substrate being associated with a micro-electromechanical

system wafer (figs 1 and 2), the substrate includes at least one of: (i) a silicon layer, (ii) an oxide layer, and (iii) a bonding layer (fig. 2) and the substrate is bonded to a backing wafer (fig. 1 and 2) and (i) piezoelectric characteristics, (ii) piezoresistance characteristics, (iii) an embedded device having piezoelectric characteristics, and (iv) an embedded having piezoresistance characteristics (page 4 line 26).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system as taught by Boesen et al to include a substrate being associated with a micro-electromechanical system wafer, the substrate includes at least one of: (i) a silicon layer, (ii) an oxide layer, and (iii) a bonding layer, and the substrate is bonded to a backing wafer as taught by AAPA for the purpose of providing a smaller yet efficient pressure sensor having a wide dynamic range and high uniform sensitivity.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boesen et al. (US 4092696) in view of Beristain (US 4530029)

Regarding claim 6 Boesen et al. teaches all the basic features of the claimed invention (i.e. at least one deformable plate), but does not disclose the first conducting plate is also deformable in response to the pressure. Beristain teaches a first conducting plate is also deformable in

response to the pressure (col. 1 lines 15-16). Therefore, it would have been obvious to a person having ordinary skill in the art of capacitive pressure sensors at the time the invention was made to modify the sensor structure of Boesen et al to include two deformable plate structures as taught by Beristain for the purpose of reducing parasitic capacitances to a minimum and to provide plate connections that are simple in fabrication (Beristain (col. 4 lines 22-25).

5. Claims 7 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boesen et al. (US 4092696) in view of Beristain (US 4530029) as applied to claim 6 above, and further in view of Braunlich (US 4287553).

Regarding claims 7 and 35 Boesen et al as modified by Beristain teaches all the basic features of the claimed invention except conducting plates comprising diaphragms. Braunlich teaches conducting plates comprising diaphragms (abstract). It would have been obvious to a person having ordinary skill in the art of capacitive pressure sensors at the time the invention was made to modify the sensors taught by Boesen et al as modified by Beristain to include conducting plates comprising diaphragms as taught by Braunlich for the purpose of increasing the lifetime of the sensor by reducing the force acting on one single diaphragm.

6. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boesen et al. (US 4092696) in view of Forster (Us 2004/0159158).

Regarding claim 31 Boesen et al teaches all the basic features of the claimed invention except the pressure dependent device is associated with at least one of: (i) a pressure display, (ii) a tire pressure monitor, (iii) an ultrasonic transducer, (iv) a blood pressure sensor, and (v) a barometer. Forster et al teaches a capacitive pressure sensing device associated with a tire pressure monitor (abstract).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system as taught by Boesen et al to include least one of: (i) a pressure display, (ii) a tire pressure monitor, (iii) an ultrasonic transducer, (iv) a blood pressure sensor, and (v) a barometer as taught by Forster for the purpose of being able to provide and monitor a change in capacitance used to derive a pressure therefrom in a tire (Forster [0007]).

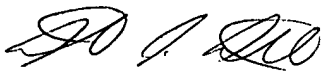
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre J. Allen

whose telephone number is 571-272-2174. The examiner can normally be reached on mon-fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



André Allen
Patent Examiner
Art Unit 2855